



Predicting organic food consumption: A meta-analytic structural equation model based on the theory of planned behavior



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ABSTRACT

During the last decade, the purchase of organic food within a sustainable consumption context has gained momentum. Consequently, the amount of research in the field has increased, leading in some cases to discrepancies regarding both methods and results. The present review examines those works that applied the theory of planned behavior (TPB; Ajzen, 1991) as a theoretical framework in order to understand and predict consumers' motivation to buy organic food. A meta-analysis has been conducted to assess the strength of the relationships between attitude, subjective norms, perceived behavioral control, and intention, as well as between intention and behavior. Results confirm the major role played by individual attitude in shaping buying intention, followed by subjective norms and perceived behavioral control. Intention-behavior shows a large effect size, few studies however explicitly reported such an association. Furthermore, starting from a pooled correlation matrix, a meta-analytic structural equation model has been applied to jointly evaluate the strength of the relationships among the factors of the original model. Results suggest the robustness of the TPB model. In addition, mediation analysis indicates a potential direct effect from subjective norms to individual attitude in the present context. Finally, some issues regarding methodological aspects of the application of the TPB within the context of organic food are discussed for further research developments.

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1. Introduction

Pro-environmental behaviors have been related to house-hold management, consumer activism with respect to environmental safety, as well as to purchase choice and usage of products (Peattie, 2010). A report by the European Commission (2009) highlighted that nowadays eight out of ten EU citizens recognize impact on environment as a central aspect when deciding which product/good they will buy. Moreover, if queried about what kind of actions has the greatest impact on solving environmental issues, a fifth of the interviewees put at second place the purchase of products produced by means of environmental-friendly methods. In particular, the United Nations have marked sustainable consumption as one of the main objectives to achieve environmental sustainability (Yadav & Pathak, 2016) and food sustainability has been indeed on UK's policy agenda since before the turn of the last century (Honkanen & Young, 2015). Within this context, the work by Jungbluth, Tietje, and Scholz (2000) highlighted the most effective ways to reduce the environmental impact of food consumption. Based on life cycle assessment¹ (LCA) analysis, the first option from a consumer perspective, in order to reduce environmental impact, is the refusal of air-transported food, followed by the preference for organic products and the reduction of meat consumption. In fact, animal products determine higher greenhouse gas emissions than products based on plants since vegetables, cereals and legumes – if not transported by plane – have the lowest gas emissions (Carlsson-Kanyama & González, 2009).

More recently, the value of these three options has been acknowledged also by Thøgersen (2010) and Tobler, Visschers, and Siegrist (2011). In the latter study, a survey was carried out to investigate consumers' beliefs and motivations behind environmental-friendly consumption behaviors: in contrast to LCA results, consumers appear to rate the purchase of organic food and the reduction of meat consumption as the least environmentally beneficial options. Moreover, although avoiding air-transported food was rated as more beneficial than the previous behaviors, still it came after the avoidance of excessive product packaging and the purchase of regional food. Hence, an asymmetry between empirical results derived from LCA and consumers' perception of environmental impact of food consumption appears to exist with consumers underestimating the importance of green food consumption despite of its acknowledged environmental relevance.

Consumers' preferences towards organic food indeed represent a form of behavior that can both promote the preservation of environment and lead the transition towards a more sustainable society. Organic food represents a form of sustainable consumption due to the fact that it is produced by employing natural processes, by means of sustainable energy, and by taking into account the protection of the soil, as well as the animal welfare (European Commission, 2014). The environmental benefits of organic food w.r.t conventional one have been remarked by several LCA studies. For instance, Boggia, Paolotti, and Castellini (2010) assessed the environmental impact of different poultry production systems concluding that the organic one owns the lowest environmental impact in all crucial impact categories. A similar work was carried out by Litskas, Mamolos, Kalburtji, Tsatsarelis, and Kiose-kampasakali (2010) that evaluated the energy flow and the effects of different farming systems on gas emissions in sweet cherry orchards. Results suggested that an organic system can reduce the

employment of non-renewable energy as well as gas emissions against the conventional one. More recently, Longo, Mistretta, Guarino, and Cellura (2015) examined energetic and environmental impact of apple cultivation in the North of Italy. Once again, a comparison between organic and conventional production systems by means of LCA yielded that, despite a lowered productivity, an organic production system reduces the environmental impact for the majority of the analyzed impact categories.

A recent report by the European Commission (2016) about agricultural research and innovation has acknowledged the need for further research by those types of farming systems that implement ecological approaches such as the organic sector. In addition, the report highlighted the importance of taking into account the role of consumers. Indeed, choices made by consumers can have a backward influence on the food production chain, to the extent that the development of organic farming appears to be governed by market rules (Padel, Lampkin, & Foster, 2011). Within the context of green consumption, however, two main types of studies can be differentiated: those coming from marketing that are mainly focused on understanding the motivations of consumers, and those coming from industrial or economical ecology that are mostly interested in the impact of consumer's behaviors (Peattie, 2010). While the second approach measures the outcome of a behavior, the first one investigates the motivations behind it. Thus, in line with the first approach, a wide range of studies within the environmental literature has assumed the theory of planned behavior (TPB; Ajzen, 1991) as the foundational backbone for investigating the psychological factors that drive consumers' behaviors towards sustainable consumption. With the words by Schultz and Kaiser, these studies addressed “the degree to which the person wants to produce a positive environmental outcome” (2012, p.4). Indeed, TPB represents a solid psychological framework that, more than others, has been able to unearth the main motivations behind food choices in relation to sustainable consumption (Peattie, 2010). In particular, given the increased importance assigned to organic food products as part of a sustainable development and the predictive power of Ajzen's theory, the amount of research aimed at understanding consumers' choice through the application of TPB has grown quickly over the last decade. Some of these works have also recently argued the canonical interpretation of the basic tenets of the TPB, as well as the strength of the associations between its fundamental factors (see, e.g., Al-Swidi, Huque, Hafeez, & Shariff, 2014; Yadav & Pathak, 2016). Therefore, we believe that a meta-analysis might be useful to shed light on some of these issues and to guide both scholars interested in studying green food-related consumers' behaviors, as well as practitioners who aim at dealing efficiently with the promotion of such products.

2. The theory of planned behavior in relation to organic food consumption

The theory of planned behavior was developed by Ajzen (1991) moving from the earlier theory of reasoned action (Fishbein & Ajzen, 1981). Both theories assume that people's behaviors rely upon deliberative bases (for instance, the contemplation of the outcomes of a certain action), but TPB also adds a component able to take into account both real and perceived difficulties that a person may experience in relation to the act of performing (or not performing) a certain behavior. Thus, TPB is a psychological model that takes into account three fundamental aspects of human behavior: personal attitude, subjective norms, and perceived behavioral control. These are the basic antecedents of the intention to engage in a certain behavior, which in turn mediates their relation with actual behavior (Fig. 1). Hence, intention is assumed to

¹ As reported by Finnveden et al. (2009), life-cycle assessment represents “a tool to assess the potential environmental impacts and resources used throughout a product's life cycle”. Detailed procedures for the application of LCA analysis are illustrated within ISO, 2006 and its successive modifications.

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